

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
)	
Candice Hellen Brown ELLIOTT et al.)	
)	
Application No.: 10/821,388)	Confirmation No. 1598
)	
Filed: April 9, 2004)	Group Art Unit: 2628
)	
For: SUBPIXEL RENDERING FILTERS)	Examiner: RAHMJOO, Manucher
FOR HIGH BRIGHTNESS)	
SUBPIXEL LAYOUTS)	
)	

APPEAL BRIEF

Sir:

Applicant submits this Appeal Brief to the Board of Patent Appeals and Interferences (hereafter, "the Board") in support of an appeal from the rejections in the Final Office Action issued by the United States Patent and Trademark Office (hereafter, "the Office") on March 1, 2006 in the above-referenced patent application.

TABLE OF CONTENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE.....	1
REAL PARTY IN INTEREST	3
RELATED APPEALS AND INTERFERENCES.....	4
STATUS OF CLAIMS.....	5
STATUS OF AMENDMENTS.....	6
SUMMARY OF CLAIMED SUBJECT MATTER.....	7
GROUND OF REJECTION TO BE REVIEWED ON APPEAL.....	9
ARGUMENT.....	10
CLAIMS APPENDIX.....	27
EVIDENCE APPENDIX	30
RELATED PROCEEDINGS APPENDIX.....	32

REAL PARTY IN INTEREST

The real party in interest in the subject application is Clairvoyante, Inc., the assignee of record. Clairvoyante, Inc. is the current name of the business entity formerly known as ClairVoyante Laboratories, Inc. A copy of the document from the Secretary of State of California that recognizes the name change is included in the Evidence Appendix.

RELATED APPEALS AND INTERFERENCES

The undersigned and the assignee are not aware of any related appeals, interferences or judicial proceedings (past or present) which will directly affect, or be directly affected by, or have a bearing on, the Board's decision in this appeal.

STATUS OF CLAIMS

Independent claim 1 and dependent claims 2 – 14 are pending in this application. Claims 1 – 14 stand rejected.

Claims 1 – 14 are the subject of this appeal. The Claims Appendix, following the Argument, provides the text of the appealed claims.

STATUS OF AMENDMENTS

Appellant filed an Amendment after Final Rejection under 37 CFR 1.116 on July 26, 2006. The amendment was entered. The Claims Appendix, following the Argument, provides the text of the appealed claims as amended in the Amendment after Final Rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a method for rendering image data of a first color space onto a display of a second color space. (Specification, pp. 8 – 9 and 13, paragraphs [019], [021], [022] and [031].) The display comprises a subpixel repeating group comprising at least one white subpixel and a plurality of colored subpixels. (Specification, pp. 8, 16, 21 and 25, paragraphs [019], [038], [039], [051], [061] and [062]; FIGS. 1, 2, 3A, 3B, 5A, 5B, 7, 8 and 15.) The method comprises receiving image data for rendering on the display and converting the image data from the first color space to image data of the second color space. (Specification, pp. 8 and 13, paragraphs [021], [022] and [031].) The method further comprises subpixel rendering each individual color plane to produce subpixel rendered image data (Specification, pp. 9 – 10, 12 – 16, and 28 – 31, paragraphs [021] – [024], [030] – [037] and [068] – [072]; FIGS. 6 and 9), and sharpening the subpixel rendered image data with a luminance signal. (Specification, pp. 9, 10 – 14, 18 – 19, 25 and 27 – 28, paragraphs [021], [024] – [032], [043] – [044], [052], [060] and [065] – [066].)

In one embodiment of the method, the step of subpixel rendering further comprises constructing filter kernels¹ from area resampling. (Dependent claim 4; specification, pp. 9, 17 – 18, 21 – 23, 26 – 27 and 30 – 31, paragraphs [022], [040] – [042], [052] – [056], [063] – [064] and [071] – [072]; FIGS. 4, 6 and 9). In one implementation, the step of constructing filter kernels further comprises mapping luminance image data onto the white subpixels. (Dependent claim 5; specification, pp. 9 - 10, paragraphs [022] – [024]). In another implementation, the step of subpixel rendering further comprises mapping chrominance data onto the plurality of colored subpixels. (Dependent claim 6; specification, pp. 9 - 10, paragraphs

¹ One reason for filing an Amendment after Final was to correct grammatical and spelling errors in the claims. This effort failed to notice the mis-spelling of "kernel" as "kernal" in claims 4, 5 and 13. In this Appeal Brief, the proper spelling is used, but the mis-spelling remains in the claims.

[022] – [024]). In still another implementation, the step of constructing filter kernels from area resampling further comprises finding a reduced set of filters according to reconstruction symmetries. (Dependent claim 13; specification, pp. 17 - 20, paragraphs [040] – [043] and [047] – [049]). The step of finding a reduced set of filters may further comprise applying corrections for offset positions. (Dependent claim 14; specification, pp. 22 – 24 and 28 - 30, paragraphs [054] – [058] and [068] – [070]).

In this Summary of the Claimed Subject Matter, the references to particular paragraphs in the specification are intended to be exemplary, and not exhaustive, of the teachings of a particular claim element in the detailed description.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. Whether claims 1 – 14 are patentable under 35 U.S.C. § 103(a) over the disclosure of U.S. Patent 6,856,704 issued to Gallagher et al, in view of the disclosure of Murdoch et al. in U.S. Patent Application Publication 2004/0263528.

ARGUMENT

Whether claims 1 – 14 are patentable under 35 U.S.C. § 103(a) over the disclosure of Gallagher in view of Murdoch.

The Final Office Action mailed on March 10, 2006 rejected claims 1 – 14 under 35 U.S.C. § 103(a) as being unpatentable over the disclosure of U.S. Patent 6,856,704 issued to Gallagher et al, (hereafter, referred to as “Gallagher”) in view of the disclosure of Murdoch et al. in U.S. Patent Application Publication 2004/0263528 (hereafter, referred to as “Murdoch”).

Appellants make two arguments with respect to the Section 103(a) rejection. In the first argument, Appellants agree, for the purpose of this argument only, that the Office Actions states a *prima facie* case of obviousness under the Statute with respect to independent claim 1. Appellants respectfully submit that the rejection under 35 U.S.C. § 103(a) may be overcome because the Murdoch reference is disqualified under 35 U.S.C. § 102(e) from being asserted as prior art in a combination against Appellants’ claims under 35 U.S.C. § 103(a) for the purpose of teaching the claim element of independent claim 1 of “subpixel rendering each individual color plane to produce subpixel rendered image data.” Applicant therefore respectfully requests that the Board disqualify the Murdoch reference, reverse the rejection under 35 U.S.C. 103 and remand the application to the Examiner for further prosecution. Appellants present this argument in Section A of the brief below.

Appellants further argue that the Office Actions fails to state a *prima facie* case of obviousness under the Statute with respect to independent claim 1. The legal conclusion, that a claim is obvious under 35 U.S.C. § 103(a), depends on at least three underlying factual issues: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the pertinent art. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966).

Appellants believe that underlying factual issue (1) is another issue at the crux of this appeal. Specifically, Appellants respectfully submit that the rejection under 35 U.S.C. § 103(a) is legally defective because the Gallagher reference does not actually teach the elements of claim 1 as stated in the Final Office Action in the context of a display that comprises a subpixel repeating group comprising at least one white subpixel. Appellants discuss this issue in Section B of the brief below.

- A. The Murdoch reference is disqualified under the provisions of 35 U.S.C. § 102(e) from being asserted in a combination against Appellants' claims under 35 U.S.C. § 103(a) for the purpose of teaching the claim element of independent claim 1 of "subpixel rendering each individual color plane to produce subpixel rendered image data."
1. Disqualified references under 35 U.S.C. § 102(e).

35 U.S.C. § 102(e) states that

35 U.S.C. 102 Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless —

(e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent ...

(Emphasis added.) The Murdoch reference is "an application for patent published under section 122(b)." Since its publication date (12/30/2004) is later than Appellant's filing date (4/9/2004), the Murdoch reference qualifies as a reference under 35 U.S.C. § 103(a) under the provisions of 35 U.S.C. § 102(e) because it has a filing date of 6/26/2003 which is before Appellants' filing date. The Final Office Action cites the Murdoch reference as teaching the claim element of "subpixel rendering each individual color plane to produce subpixel rendered image data" in claim 1 (hereafter referred to as "the subpixel rendering element of claim 1"). For purposes of this discussion, then, the phrase "the invention" in the quoted portion of

35 U.S.C. § 102(e) above refers solely to this claim element, and not to the claimed invention as a whole.

Appellants have done innovative and perhaps even pioneering work in the field of subpixel rendering of image data for display panels having non-standard subpixel layouts. As this work in the field of display device engineering becomes more widely known, an increasing number of published references will cite to Appellants' work in the same manner as in the Murdoch reference. It is therefore important to Appellants to establish a clear interpretation of the provisions of 35 U.S.C. § 102(e) as to when a reference by "another" that clearly recites Appellants' own work is eligible to be disqualified as a reference.

It will be shown in the discussion below that a close inspection of the Murdoch publication indicates that the subject matter recited in the Office Action as teaching the subpixel rendering element of claim 1 is limited to a small portion of the Murdoch publication. Appellants respectfully submit that this small portion of the Murdoch disclosure specifically cites two origins for the "resampling" subject matter described therein, one of which is Appellants' own work. Therefore the Murdoch publication is at least ambiguous as to the potential origin of the subject matter of the subpixel rendering element of claim 1 and therefore should be disqualified from being asserted as a reference under the provisions of 35 U.S.C. § 102(e).

The US Court of Customs and Patent Appeals (hereafter, the "CCPA") has addressed the issue of when it is proper to use a reference that is purportedly "prior art" under the Statute by stating that applicant's own work may not be used against him or her unless there is a time bar under 35 U.S.C. 102(b). *In re DeBaun*, 687 F.2d 459, 214 USPQ 933 (CCPA 1982) (citing *In re Katz*, 687 F.2d 450, 215 USPQ 14 (CCPA 1982)). In the application at issue in *DeBaun*, the Examiner had rejected the claims under 35 U.S.C. 103, citing as the single reference a patent issued to joint inventors Noll and DeBaun. Inventor DeBaun had filed a declaration under 37 CFR 1.131 in the appealed application, in response to a requirement by the Examiner, that essentially stated that DeBaun had originally conceived the claimed

subject matter of the appealed application that was disclosed in the referenced patent. The Examiner found that the declaration was insufficient to overcome the reference and maintained the rejection. On appeal to the Board, the Board sustained the rejection, finding that the declaration was not sufficient to show that appellant was solely the inventor of the subject matter claimed in the appealed application.

The CCPA agreed with the Examiner and the Board that appellant could overcome, or “antedate” the cited patent reference with a proper Rule 131 declaration. The CCPA also agreed that the declarations were insufficient under Rule 131. However, the CCPA concluded that the Examiner erred in concluding that a Rule 131 affidavit was the only way of overcoming the rejection made in the appealed application. Citing *In re Katz*, 687 F.2d 450 (Cust & Pat.App. 1982) issued concurrently, the CCPA noted that it had reaffirmed that an applicant’s own work, even though publicly disclosed prior to his application, may not be used against him as a reference, absent the existence of a time bar to his application. *In re DeBaun*, 687 F.2d at 462. The Court further stated that it was error for the Board to test the declaration to determine whether it supported appellant’s assertion of inventorship of the claimed subject matter, stating that

[T]he proper subject of inquiry was what the evidence showed as to who invented the subject matter disclosed by [the reference] which was relied on to support the rejection.

The only question raised by the rejection is whether appellant invented the relevant disclosure in the ‘678 patent.

Id., at 462 – 463. Most of the case law discusses the more conventional fact situation where some portion of the reference by joint inventors is used against the claims in an application of a sole inventor and the sole and joint inventors are related. However, the basic teaching still applies: applicant may overcome a *prima facie* case based on the patent, U.S. patent application publication, or international application publication by showing that the disclosure is a description of applicant’s

own previous work. *See also* the Manual of Patent Examining Procedure (MPEP) § 2136.05.

2. The Murdoch reference cites two references as teaching the subject matter of “resampling.” One of these references is a recitation of subject matter in US 2003/0034992A1 that was owned by the same person (Assignee Clairvoyante, Inc.) at the time the claimed invention was made.

The Final Office Action recites the Murdoch reference as teaching the subpixel rendering element of independent claim 1, and cites to figures 6 and 8 and paragraph [0072] in the Murdoch disclosure. It will be shown below that paragraph [0072] refers to “resampling” and that a description of resampling is provided in paragraph [0073]. Paragraph [0073], in turn, explicitly refers to two references, one of which is Patent Application Publication US 2003/0034992 A1 (hereafter “the ‘992 publication”), which has the same inventive entity as the subject application. The ‘992 publication was cited in an Information Disclosure Statement filed on 2/2/06 in the subject application. For the convenience of the Board, a copy of the front page of the ‘992 publication is provided in the EVIDENCE APPENDIX of this Appeal Brief. The front page of the ‘992 publication shows the assignee to be ClairVoyante Laboratories, Inc. Appellants have also provided a copy of the document from the Secretary of State of California showing the assignee’s name change from ClairVoyante Laboratories, Inc. to Clairvoyante, Inc. Appellants also note that the application that is the basis of the ‘992 publication issued as US 7,123,277 on October 17, 2006.

This part of the discussion reviews the entire disclosure of the Murdoch reference to isolate the portions that may be reasonably interpreted to teach the claim element of “subpixel rendering each individual color plane to produce subpixel rendered image data,” and demonstrates that the relevant disclosure may in fact be a recitation of Appellants’ own work.

The Office Action interprets the discussion of “resampling” in paragraph [0072] in Murdoch as teaching the claim element “subpixel rendering each individual

color plane to produce subpixel rendered image data.” See Office Action, page 3. Appellants acknowledge that this interpretation is reasonable in view of Appellants’ specification, but also note herein that the specification, at paragraph [022] also supports other methods of subpixel rendering.

a. The discussion of “resampling” in the Murdoch disclosure.

The Murdoch reference is concerned with an Organic Light Emitting Diode (OLED) device in which the subpixel layout includes the four primary colors of red (R), green (G), blue (B) and white (W). (Murdoch, paragraphs [0003] and [0025].) Murdoch notes that, “if incoming image data is sampled for display on a three color display device, the data will also have to be resampled for display on a display having four OLEDs per pixel rather than the three OLEDs used in a three channel display device.” *Id.* In the Background section of the Murdoch publication (paragraphs [0002] thru [0011]), Murdoch discusses previous work related to the use of a display device having a white primary and to the subject of “resampling.” Murdoch references the ‘992 publication in paragraph [0010], in which he states

[0010] The prior art also includes methods for resampling image data from one intended spatial arrangement of light emitting elements to a second spatial arrangement of light emitting elements. US Patent Application No. 2003/0034992A1, by Brown Elliott et al., published Feb. 20, 2003, discusses a method of resampling data that was intended for presentation on a display device having one spatial arrangement of light emitting elements having three colors to a display device having a different spatial arrangement of three color light emitting elements. Specifically, this patent application discusses resampling three color data that was intended for presentation on a display device with a traditional arrangement of light emitting elements to three color data that is intended for presentation on a display device with an alternate arrangement of light emitting elements.

However, this application does not discuss the conversion of data for presentation on a four or more color device.

Figure 2 in Murdoch shows a flow diagram of the general steps in the method of converting an input RGB signal to a signal referenced as R',G',B',W. In paragraph [0058], Murdoch discloses:

[0058] The method of the present invention can be implemented in the context of an image processing method that allows the incoming data to be spatially resampled to the RGBW pattern of OLEDs on the OLED display device. In such a method, the three-color input signal is typically converted to a four (or more) color signal using a method such as the methods described above. A resampling is then performed to determine the appropriate intensities for the OLEDs within the four or more color display device. This resampling process may consider relevant display attributes, such as the sampling area, sampling location, and size of each intended OLED.

A process that may be used for resampling and transformation of the three color signal is shown in Figure 5. (Murdoch, paragraph [0060].) Processes for determining the input signal are discussed in paragraphs [0061] through [0071]. The subject of “resampling” is discussed in paragraph [0072]:

[0072] Resampling Resampling may be performed either to resample data from a format intended for display on a prior art stripe or delta pattern as shown in FIG. 6a and FIG. 6b to a format with a color signal representing a value at every spatial location or it may be used to resample data from a format with a color signal at every spatial location to a pattern that includes a white subpixel, such as the stripe pattern shown in FIG. 8a or the quad pattern shown in FIG. 8b. As shown in each of these figures, the display

device 110 is composed of pixels 112 having red 114, green 116, blue 118 and white 120 OLEDs.

Despite the reference in paragraph [0010] that the '992 publication "does not discuss the conversion of data for presentation on a four or more color device," Murdoch nonetheless references the '992 publication in Paragraph [0073]:

[0073] Various resampling techniques are known in the art and have been described by others including US Patent Application No. 2003/0034992A1, referenced above, and Klompenhouwer, et al., Subpixel Image Scaling for Color Matrix Displays, SID 02 Digest, pp. 176-179. These techniques generally include the same basic steps. To perform resampling, a single color signal (e.g., red, green, blue, or white) is selected 130. The sampling grid (i.e., location of each sample) of the input signal is determined 132. The desired sampling grid 134 is then determined. A sample point corresponding to a spatial location in a pixel is selected 136 in the desired sampling grid. If a sample does not exist in the input signal at this spatial location, neighboring input signal values in the color signal (i.e., either in the three color input signal or the four color output signal depending on when in the process resampling is applied) are located 138 in either one or two dimensions. A set of weighted fractions related to the spatial locations represented by the neighboring input signal values are then computed 140. These fractions may be computed by a number of means including determining the distance from the desired sample location to the neighboring samples in the input signal within each spatial dimension and summing these distances and dividing each distance by the sum of the distance from the selected sample point to the position of the neighboring samples in each dimension. The neighboring input signal values

are then multiplied 142 by their respective weighted fractions to produce weighted input signal values. The resulting values are then added 144 together, resulting in the resampled data at the selected position in the desired sampling grid. This same process is repeated 146 for each grid position in the desired sampling grid and then for each color signal.

In view of this discussion, it can be seen that the only substantive reference in the Murdoch reference to “resampling” occurs in the description of FIG. 9 in paragraph [0073]. Appellants respectfully submit that Murdoch makes no mention in paragraph [0073] to any independent contribution to the description of resampling in paragraph [0073] by any of the inventors named in the application that forms the basis of the Murdoch publication. It is reasonable – indeed necessary – to conclude from the language in paragraph [0073] of Murdoch that this description is therefore merely a description of one or both of the two named references in that paragraph, one of which is Appellants’ own work, and the second of which is authored by Klompenhouwer et al.

The Office Action also recites Figures 6 and 8 as teaching the subpixel rendering element of claim 1. However, as noted in Murdoch, FIG. 6a is a depiction of a typical prior art RGB stripe arrangement of OLEDs, and FIG. 6b is a drawing of a typical prior art RGB delta arrangement of OLEDs. FIG. 8a is a depiction of a RGBW stripe arrangement of OLEDs useful with the disclosed invention, and FIG. 8b is a depiction of a RGBW quad arrangement of OLEDs useful with the disclosed invention. Appellants respectfully submit that these figures merely illustrate different subpixel layouts, and have no relevance to the teaching of the subpixel rendering element of claim 1.

- b. The Murdoch disclosure is ambiguous as to whether the discussion of “resampling” is a discussion of Appellants’ own work, but because it may be Appellants’ work and at least one other reference is available to cite as teaching the subpixel rendering claim element, the Murdoch disclosure should be disqualified.

Appellants respectfully submit that, because Murdoch does not explicitly disclose which one of the cited references is being described in association with Figure 9, and because one of the cited references is Appellants own work, **there is no way to know that the teaching from Murdoch** as applied to the claim element “subpixel rendering each individual color plane to produce subpixel rendered image data” **is not Appellants’ own work**.

Under the holdings in the *DeBaun* and *Katz* cases discussed above, an applicant’s own work may not be used against him as a reference, absent the existence of a time bar to his application. To ensure that Appellants’ own work is not cited against them in this instance, Appellants respectfully submit that the Murdoch reference should be disqualified as prior art under 35 U.S.C. 102(e) for the purposes of teaching the subpixel rendering element of claim 1. The reasoning is clear: The ‘992 publication is not eligible under 35 U.S.C. 102(e) to be cited as teaching the subpixel rendering element of claim 1 because the inventive entity of the ‘992 publication is not “another.” Therefore, a reference purportedly by another that on its face attributes the description of the recited claim element to two references, one of which is the ‘992 publication, should also not be eligible as a reference under 35 U.S.C. 102(e) for the purposes of teaching the recited claim element.

Appellants believe that the Office has references available apart from the Murdoch reference to support the teaching of the subpixel rendering claim element under 35 U.S.C. 102(e). One such piece of art may be the Klompenhouwer reference that Murdoch states as one of the sources for the description of “resampling,” although Appellants make no admission herein that the Klompenhouwer reference is prior art to Appellants invention. Examples of other

available references may have been cited by Applicant in the Information Disclosure Statement filed on February 2, 2006 in the subject application. Or the Office may be able to cite the '992 publication under another section of the Statute. In any event, Applicant respectfully requests that the Board disqualify the Murdoch reference as being an eligible reference under 35 U.S.C. 102(e) for the purposes of teaching the subpixel rendering element of claim 1, reverse the Examiner as to the rejection under 35 U.S.C. § 103 and remand the application to the Examiner for further prosecution.

3. The common ownership of the subject matter in US 2003/0034992 can be established on the face of the Murdoch disclosure, and in the prosecution history, without the need for an affidavit under 37 CFR 1.132.
 - a. 37 CFR 1.132 provides one procedure for removing a reference under the prosecution circumstances described herein.

As noted in the Patent Rules, and in the MPEP, an affidavit or declaration under 37 CFR § 1.132 may be used to provide evidence on the record that the subject matter in a Section 102(e) reference asserted against the claims of an inventor was actually invented by the inventor.

§ 1.132 Affidavits or declarations traversing rejections or objections.

When any claim of an application or a patent under reexamination is rejected or objected to, any evidence submitted to traverse the rejection or objection on a basis not otherwise provided for must be by way of an oath or declaration under this section.

The most common situation in which this may occur is the situation of collaborative inventors in which unclaimed subject matter in a reference has been invented by collaborative inventors (the “another” inventive entity under Section 102(e)) and the inventor in the application in which the subject matter is being asserted must state on the record that he/she invented it. The *DeBaun* and *Katz*

cases discussed above are examples of this situation. As noted above, the CCPA in *DeBaun* explicitly noted that filing a declaration or affidavit under Rule 132 is an appropriate procedure to follow to establish that the subject matter in the reference being asserted was not made by “another” inventive entity.

Appellants acknowledge that no such declaration has been filed in the subject application. In Appellants’ Reply filed on February 2, 2006 to the first Office Action, which rejected the claims under 35 U.S.C. § 102(e) and first cited the Murdoch reference, Appellants’ representative stated:

Applicant however notes that this disclosure [with reference to Murdoch] teaches nothing more than what is taught in Applicant’s co-owned US Patent Application No. 2003/0034992 – and further elaborated in Applicant’s co-owned US Patent Application No. 2004/0051724.

To the extent, then, that the Examiner is employing Murdoch as a prior art reference, teaching the claim limitation of “subpixel rendering each individual color plane” -- then Applicant respectfully submits that the Murdoch is merely reiterating Applicant’s own art. Therefore, Applicant believes that the Examiner should properly cite Applicant’s art instead, if the Examiner cares to continue with the present rejection.

Appellants’ representative believed that this was sufficient to alert the Examiner to the fact that Murdoch was reciting Appellants’ own work in the discussion of “resampling” therein.

- b. The Murdoch disclosure is clear on its face that Appellants may have invented the subject matter recited as teaching the subpixel rendering element of claim 1, and so a declaration under 37 CFR 1.132 is not required.

The Murdoch disclosure is clear on its face that Appellants may have invented the subject matter recited as teaching the subpixel rendering element of

claim 1. In comments in the background of the Murdoch disclosure about the subject matter in the '992 publication, the inventive entity of the publication is clearly named as being Brown Elliott et al. See Murdoch, paragraph [0010]. The discussion above of the contents of the Murdoch disclosure clearly shows that the teaching of the "resampling" subject matter is limited to paragraph [0073], in which the '992 publication is named as one of two possible sources for the subject matter.

In paragraph [03] of the Background section of Appellants' specification, Appellants note that certain improvements, as set forth in paragraph [02], to display systems comprising subpixel repeating groups having an even number of subpixels in a horizontal direction are particularly pronounced when coupled with sub-pixel rendering (SPR) systems and methods disclosed in certain commonly owned US patent applications listed in that paragraph. The first commonly-owned application so listed is US 10/051,612. In the Reply filed on February 2, 2006 to the first Office Action, Appellants provided the US Patent Application Publication Number of US 10/051,612 as being US 2003/0034992. Appellants also provided a copy of this document in an Information Disclosure Statement filed on the same date.

The individuals listed as inventors in the application that forms the basis of the Murdoch publication are not affiliated with Clairvoyante, Inc., the assignee of the subject application, or with any of the named inventors of the subject application. Thus, Appellants believe that the present situation is not the situation in which an affidavit or declaration under 37 CFR 1.132 is typically called for (e.g., collaborative inventors), and so Appellants in good faith do not believe that an affidavit under 37 CFR 1.132 is required to remove the Murdoch reference. Indeed, such an affidavit or declaration under 37 CFR 1.132 would merely provide the facts stated above as to the analysis of the contents of the Murdoch reference, and would not provide any additional information that was specific to Appellants' own knowledge. Such an analysis may be introduced into the record by Appellants' representatives, without the need for a declaration.

Instead, Appellants request that the Board provide guidance to the Office in this application, and in the prosecution of applications in the future, as to when a reference published by another may be disqualified as a reference under Section 102(e) for teaching an applicant's own work. Specifically, Appellants ask the Board to find that a published reference that otherwise qualifies as prior art under Section 102(e) of the Statute is disqualified as a reference when an applicant makes a sufficient showing on the prosecution record that it is clear on the face of the published reference that an applicant's own work may be the sole attribution for the teaching of one or more of the elements of one of applicant's claims.

- B. The Gallagher reference as recited by the Office Action cannot teach the claim elements of independent claim 1 because the method of independent claim 1 operates in the context of a display that comprises a subpixel repeating group comprising at least one white subpixel and a plurality of colored subpixels, and the Gallagher reference does not teach such a display.

Independent claim 1 is directed to a method for rendering image data of a first color space onto a display of a second color space. As noted in the claim preamble, the display comprises a subpixel repeating group comprising at least one white subpixel and a plurality of colored subpixels. The Office Action asserts the combination of Gallagher in view of Murdoch against claim 1, but fails to point out the teaching in the Gallagher reference of a display comprising a subpixel repeating group comprising at least one white subpixel and a plurality of colored subpixels. Appellants respectfully submit that (1) the Gallagher reference makes little or no mention as to whether the preference sharpening technique disclosed therein actually operates in a display; and (2) it would appear that there is little or no description in Gallagher of the colors of the subpixels in the subpixel repeating group of which such a display would be comprised, and there is clearly no mention of a display comprising a subpixel repeating group further comprising at least one white subpixel.

Gallagher provides an overview of the disclosed techniques with reference to FIG. 1, and notes that

[t]he output of the preference sharpener 2 comprises a digital image that, in accordance with the invention, appears sharper and more natural than can be achieved with traditional means of sharpening a digital image.



FIG. 1

(Gallagher, col. 5, lines 32 – 36; emphasis added.) Thus, the output is a digital image, and no mention is made here of the display on which the digital image is to be rendered. FIG. 2 shows a block diagram of the preference sharpener 2 of FIG. 1, and includes component 30, labeled “RGB Converter,” as the last component prior to producing the enhanced digital image output. Gallagher describes component 30 as follows:

The digital image channels output from the sharpening processor 20 and the digital image channels output from the chrominance processor 40 are input to an RGB converter 30 for conversion back to a digital image composed of a red, green, and blue digital image channels. This conversion is again accomplished with a matrix rotation (i.e., the inverse of the previous color rotation matrix performed by the converter 10). Inverting a 3 by 3 matrix is well known in the art and will not be further discussed. The output of the RGB converter 30 is a digital image that has been sharpened for the preference of the operator.

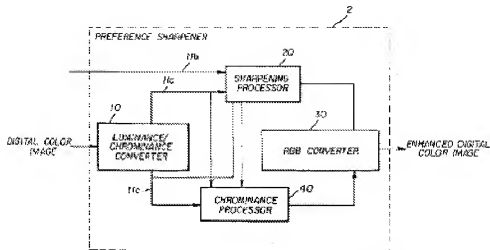


FIG. 2

(Gallagher, col. 6, lines 42 – 52; emphasis added.) Again, the output is explicitly described as a digital image, and no mention is made here of the display on which the digital image is to be rendered. This passage suggests that the output image contains colors specified in R, G and B. The Gallagher disclosure makes no reference to subpixels, and in particular, no reference to a white subpixel.

Appellants respectfully submit that the Gallagher reference does not teach the claim elements of independent claim 1 in the context of the display set forth in that claim's preamble. Specifically, the Gallagher reference does not teach the claim elements of independent claim 1 in the context of a display comprising a subpixel repeating group, said group further comprising at least one white subpixel. The first element of claim 1 recites the step of "receiving image data for rendering on said display." If Gallagher does not explicitly teach the display as recited in the preamble, the Gallagher reference, it follows that the Gallagher reference cannot teach the first element of claim 1. Therefore, Appellants respectfully ask that the Board reverse the Examiner as to the Section 103 rejection on the grounds that the Examiner fails to state a *prima facie* case of obviousness under the Statute with respect to independent claim 1.

CONCLUSION

In view of the discussion and arguments presented above, Appellants respectfully request that the Board disqualify the Murdoch reference as being an eligible reference under 35 U.S.C. 102(e) for the purposes of teaching the subpixel rendering element of claim 1, reverse the Examiner as to the rejection under 35 U.S.C. § 103 and remand the application to the Examiner for further prosecution.

Also in view of the discussion and arguments presented above, Appellants respectfully submit that the Examiner fails to state a *prima facie* case of obviousness under 35 U.S.C. § 103(a) with respect to independent claim 1 because the Gallagher reference does not teach the display in which independent claim 1 operates, and therefore cannot teach the claim element of receiving image data for rendering on said display. Therefore, Appellants respectfully request that the Board reverse the Examiner as to the rejection under 35 U.S.C. § 103 and remand the application to the Examiner for further prosecution.

Respectfully submitted,

/Judith C. Bares/

Judith C. Bares Reg. No. 35,824

Dated: November 27, 2006

CLAIMS APPENDIX

1 Claim 1: In a display, said display comprising a subpixel repeating group, said
2 group further comprising at least one white subpixel and a plurality of colored
3 subpixels, a method for rendering image data of a first color space onto said
4 display of a second color space, the steps of said method comprising:
5 receiving image data for rendering on said display;
6 converting said image data from said first color space to image data of said
7 second color space;
8 subpixel rendering each individual color plane to produce subpixel rendered
9 image data; and
10 sharpening the subpixel rendered image data with a luminance signal.

1 Claim 2: The method of Claim 1 wherein said first color space is one of a group,
2 said group comprising: RGB, sRGB, and YCbCr.

1 Claim 3: The method of Claim 2 wherein said second color space is one of a
2 group, said group comprising: RGBW, RGBW+L, RGBCW+L, and RGBMW+L.

1 Claim 4: The method of Claim 1 wherein the step of subpixel rendering further
2 comprises constructing filter kernels from area resampling.

1 Claim 5: The method of Claim 4 wherein said step of constructing filter
2 kernels further comprises mapping luminance image data onto said white
3 subpixels.

1 Claim 6: The method of Claim 4 wherein the step of subpixel rendering further
2 comprises mapping chrominance data onto said plurality of colored subpixels.

1 Claim 7: The method of Claim 6 wherein the step of mapping the
2 chrominance data onto said plurality of colored subpixels further comprises shifting
3 the phase of at least one color plane to interstitial positions of said colored
4 subpixels.

1 Claim 8: The method of Claim 6 wherein the step of mapping the
2 chrominance data onto said plurality of colored subpixels further comprises
3 sharpening at least one color plane with luminance data.

4 Claim 9: The method of Claim 8 wherein the step of sharpening at least one
5 color plane with luminance data further comprising sharpening with a difference of
6 gaussian filter.

1 Claim 10: The method of Claim 6 wherein the step of mapping the
2 chrominance data onto said plurality of colored subpixels further comprises cross-
3 color sharpening said chrominance data.

1 Claim 11: The method of Claim 6 wherein the step of mapping the
2 chrominance data onto said plurality of colored subpixels further comprises self-
3 sharpening.

1 Claim 12: The method of Claim 5 wherein said step of mapping luminance
2 image data onto said white subpixels comprises using one of a group of filters,

3 said group comprising: a tent filter, a box filter, a unity filter, a box-cubic filter, and
4 a tent-cubic filter.

1 Claim 13: The method of Claim 4 wherein the step of constructing filter kernels
2 from area resampling further comprises finding a reduced set of filters according to
3 reconstruction symmetries.

1 Claim 14: The method of Claim 13 wherein the step of finding a reduced set of
2 filters further comprises applying corrections for offset positions.

EVIDENCE APPENDIX



US 2003/034992A1

(19) **United States**
(12) **Patent Application Publication** (10) **Pub. No.: US 2003/0034992 A1**
(21) **Brown Elliott et al.** (13) **Pub. Date: Feb. 20, 2003**

(52) **CONVERSION OF A SUB-PIXEL FORMAT DATA TO ANOTHER SUB-PIXEL DATA FORMAT**

143, filed on May 9, 2001. Provisional application No. 60/313,054, filed on Aug. 15, 2001.

(73) **Inventors: Candice Helen Brown Elliott, Vallejo, CA (US); Michael Francis Higgins, Cazadero, CA (US)**

Publication Classification

(51) **Int. Cl.** G09G 5/10
(52) **U.S. CL.** 345/690

Correspondence Address:
SIERRA PATENT GROUP, LTD.
P.O. BOX 6149
STATTLIN, NV 89449 (US)

ABSTRACT

A method of converting a source pixel data of a first format for a display of a second format having a plurality of inter-color pixel elements is disclosed. The method comprises determining implicit sample areas for each data point of each color in the source pixel data of the first format. The sample areas for each element of each color in the display is then determined. A set of functions for each sample area is formed. The known functions are a function of the sample area and the unknowns are the function of an area of each of the implicit sample areas that at least partially overlaps the sample areas. The data values for each implicit sample area is multiplied by its respective function and all products are added together to obtain thinned values for each sample area.

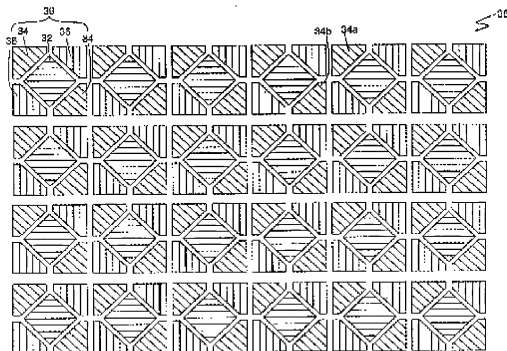
(73) **Assignee: Clairvoyante Laboratories, Inc.**

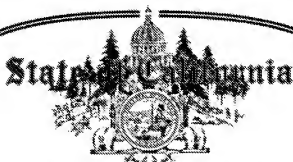
(21) **Appl. No.: 10/051,612**

(22) **Date: Jun. 16, 2002**

Related U.S. Application Data

(60) **Provisional application No. 60/290,085, filed on May 9, 2001. Provisional application No. 60/260,087, filed on May 9, 2001. Provisional application No. 60/290,**





SECRETARY OF STATE

CERTIFICATE OF FILING

I, KEVIN SHELLEY, Secretary of State of the State of California, hereby certify:

That on the **2nd day of March 2004**, there was filed in this office an amendment changing the corporation name from **CLAIRVOYANTE LABORATORIES, INC.**, a California corporation, to **CLAIRVOYANTE, INC.**

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this day of April 26, 2004.



Kevin Shelley
KEVIN SHELLEY
Secretary of State

TS

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.